# The Economic Impact of the Critical Access Hospital Program on Illinois Communities

A Final Report to the
**Illinois Critical Access Hospital Network**


By Northern Illinois University
NIU Regional Development Institute
NIU Outreach

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Following are the 34 Illinois Critical Access Hospitals that provided survey information for this study.

Abraham Lincoln Memorial Hospital
Community Medical Center of Western Illinois, Inc.
Community Memorial Hospital
Sarah D. Culbertson Memorial Hospital
Dr. John Warner Hospital
Eureka Community Hospital
Fairfield Memorial Hospital
Franklin Hospital
Galena Stauss Hospital
Gibson Area Hospital and Health Services
Hamilton Memorial Hospital
Hammond-Henry Hospital
Hopedale Medical Complex
Illini Community Hospital
Julia Rackley Perry Memorial Hospital
Kewanee Hospital
Marshall-Browning Hospital
Mason District Hospital
Massac Memorial Hospital
Memorial Hospital Association
Mendota Community Hospital
Mercy-Harvard Hospital
Morrison Community Hospital
Pana Community Hospital
Paris Community Hospital
Pinckneyville Community Hospital District
Rochelle Community Hospital
Salem Township Hospital
St. Joseph - Highland Hospital
St. Joseph Memorial Hospital
St. Vincent Memorial Hospital
Valley West Community Hospital
Wabash General Hospital
Washington County Hospital

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# Executive Summary

## THE ECONOMIC IMPACT OF THE CRITICAL ACCESS HOSPITAL PROGRAM ON RURAL ILLINOIS COMMUNITIES

Illinois has 51 small hospitals located throughout the state that are designated as Critical Access Hospitals (CAHs). The CAH Program was created by Congress in 1997 as a safety net to assure Medicare beneficiaries access to health care services in rural areas. It was designed to allow more flexible staffing options to respond to community needs, simplify billing methods, and create incentives to develop local integrated health delivery systems, including acute, primary, emergency, and long-term care. The Illinois Critical Access Hospital Network has contracted with Northern Illinois University to analyze the economic impact of the CAHs on their communities. This report presents the study findings.

The market areas served by CAHs are more than three times as rural as the state as a whole. The vast majority of these areas experienced net population loss between 2000 and 2005 and have more elderly, fewer young residents, and lower median incomes than the statewide averages. In two-thirds of the 33 rural CAH counties, hospitals are among the three largest employers in the county.

Two survey instruments were developed to capture information on the effect of CAH status on operating revenue, expenses, employment, patient loads, payor mix, capital expenditures, services, and relationships with other regional healthcare providers. Using input/output modeling and comparative analysis, 20 key findings were generated regarding current hospital operations and net changes in operation and services since CAH designation.

### Key Findings

1. CAH status resulted in immediate and sustained improvements in revenues for almost every hospital that participated in the study, and in improved profitability for the majority of hospitals. However, despite these financial improvements, a number of hospitals reported an ongoing struggle with financial solvency.
2. Increases in Medicare reimbursement and in charges were the two main sources of revenue growth identified by respondents. Increased admissions were the third largest reason for improved revenue streams.
3. Changes in payor mix differed for CAH inpatients and outpatients. Following designation, inpatient changes included decreased reliance on Medicare and increased payments from the self-insured (self-payors). Outpatient changes included increases in both Medicare and Medicaid payments and a decrease in third party payments.
4. The patient revenues generated by this payor mix enabled a majority of CAHs to cover operating costs in 2005. However, only third party payors reimbursed at a rate for patient services that consistently exceeded expenses.
5. Overall, the greatest shortfall in reimbursement is by Medicaid, followed by Medicare and the self-insured. In most cases, the hospitals receive net revenue from third party payors, suggesting a fair amount of cross-subsidy among payor categories.
6. CAHs represent a significant employer in rural Illinois communities. CAH designation enabled the majority of hospitals to increase their staffing levels, primarily in direct care positions. Significant quality improvements were attributed to these additional positions.

# Executive Summary

7. A number of hospitals were able to add clinics and needed patient and community services, expansions that account for much of the increase in direct patient care personnel.
8. The most significant change in service levels in hospitals that had been designated as CAH for at least two years was in outpatient admissions, which grew by an average of 50.9%. Increased admissions were explained, in part, as resulting from facility improvements and expansions and the hiring and retention of quality medical personnel that resulted from CAH designation.
9. Designation as a Critical Access Hospital allowed for the maintenance of patient and community services that were in financial jeopardy and the addition of specialty clinics and services that focused on the emerging healthcare needs of their community.
10. Many CAHs attributed improved services to the increased collaboration and communication with other regional providers that occurred since designation. These enhanced relationships allowed them to provide more services with existing resources.
11. CAH designation enabled many hospitals to address deferred capital improvements, including a number of life/safety projects and routine repairs. These increased capital investments in facility renovation and expansion, replacement of obsolete medical equipment, and the purchase of modern diagnostic and imaging equipment were credited with improving the ability of CAHs to deliver quality services to their communities.
12. COMPdata provided by five CAHs illustrate the breadth and versatility of the medical services these hospitals provide to their communities. In 2005, they treated an average of 108 different diagnoses for inpatients 65 and older and 91 diagnoses for those under 65. Moreover, there were only one or two cases reported for almost two-thirds of these diagnostic categories for both age groups.
13. The rural elderly are primary users of the CAHs. Individuals 65 and older represent 14.1% of the residents of the CAH counties, but made up 65.2% of all 2005 inpatient admissions for the five case study hospitals.
14. CAH designation has enabled small, rural Illinois hospitals to stabilize financially and maintain or expand quality healthcare services to their communities. The continued existence of these medical facilities has a significant local economic impact in revenues generated through hospital expenditures and through employee salaries.
15. The mature CAHs that provided financial data for this report experienced an annual increase of 9% in net revenue between 2000 and 2005, a robust growth rate when considering comparable rates of hospital output of 1.1% for the U.S. as a whole, -0.25% for the Great Lakes region and -0.6% for Illinois.
16. In two-thirds of the rural counties in which CAHs are located, the hospital is among the three largest employers in the county and is a major economic driver for the regional economy. In 2005, the combined net operating revenue for the 33 CAHs that reported FY05 financial data was $528 million.

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17. In addition to these direct economic impacts, another $235 million was generated by the CAHs in business-to-business transactions and the expenditures by CAH employees on local goods and services (i.e. indirect and induced impacts). The total estimated economic impact of all Critical Access Hospitals on their host counties in 2005 was $763,794,674.
18. Construction projects undertaken by the participating hospitals, many of which were deferred until obtaining CAH status, generated additional economic benefit to their communities. In 2005, CAH facility renovations and expansions resulted in an estimated additional $11.2 million in revenues to their counties and short-term employment for approximately 571 construction workers.
19. Future capital improvements planned for 2007 through 2011 will produce an estimated additional $21.7 million in revenues and approximately 1,103 construction jobs.
20. Beyond financial stabilization and quality improvements, survey respondents identified benefits associated with CAH status as the ability to attract and retain qualified physicians and other healthcare personnel to these rural facilities and the opportunity to refocus their operations to improve efficiency.

Critical Access Hospitals throughout rural Illinois serve vital medical and economic purposes. In addition to providing a broad range of primary and emergency care and community services to medically vulnerable populations, particularly the elderly, CAHs are major contributors to the local economic base. Designation as a Critical Access Hospital and access to the financial benefits associated with that program have enabled many of these institutions not only to keep their doors open, but to update obsolete facilities and equipment and respond to the changing healthcare needs of their communities. The continued presence of the hospitals that participated in this study represents annual contributions of more than $775 million to their local economies through expenditures and payroll.

# Introduction

The Critical Access Hospital (CAH) Program was created as a safety net by the 1997 federal Balanced Budget Act to assure Medicare beneficiaries access to health care services in rural areas. It was designed to allow more flexible staffing options relative to community need, simplify billing methods and create incentives to develop local integrated health delivery systems, including acute, primary, emergency and long-term care. CAH designation enables these financially vulnerable Medicare providers to be paid on a reasonable cost-based reimbursement system. Medicare providers that are not designated as CAH are reimbursed using the prospective payment system (PPS) that is based on a predetermined, fixed amount calculated by region for various types of service. As an alternative to PPS, the cost-based reimbursement system available through the CAH Program offers the additional margin of financial support that many CAHs need to continue to provide healthcare to typically underserved rural areas.

In Illinois, as in other states, CAHs serve as the backbone of rural healthcare systems by providing primary and emergency healthcare services for the communities they serve. As of December 30, 2005, 51 hospitals in Illinois had been designated through the CAH Program. However, with federal healthcare dollars shrinking and an uncertain future for the CAH Program, it is important to understand how CAH designation affects rural hospitals and the communities they serve. While the daily operational impact of the CAH Program has been measured by many hospital administrators and researchers, little has been done to assess the broader community economic impacts of this program.

To assist in understanding this relationship, the Illinois Critical Access Hospital Network has contracted with Northern Illinois University (NIU) to analyze the economic impact of the CAH Program on the rural communities they serve. This study addresses four questions:

1. What is the importance of the healthcare sector on the local economy?
2. What has been the CAH's financial impact on the local economy since conversion?
3. What changes in access to hospital services have occurred since CAH conversion?
4. What changes in service provision have occurred since CAH conversion?

The balance of this report is organized into three sections. The first provides additional background on the CAH Program and the characteristics of participating hospitals in Illinois. Next is a description of the methodology used for the study. The final section provides findings on the impact of CAH designation at both the micro or hospital level and the macro or county level.

# Background of the Critical Access Hospital Program

## Crisis in Rural Healthcare.

Hospital-based healthcare in rural counties across the country experienced dramatic increases in costs per patient as populations declined and costs rose in the last quarter of the Twentieth Century. In many Illinois rural counties there has been a continuing net loss of population since the 1970s while the proportion of senior residents continues to increase. These growing concentrations of older residents, often with lower incomes and longer life expectancies, tend to have the most serious and expensive health needs. Many small hospitals serving these rural populations closed as already slim operating margins dwindled.

At the same time, a number of these counties lost or could not attract local healthcare providers and became designated as Medically Underserved and Health Professional Shortage Areas. In addition to limiting access to quality healthcare for rural residents, this shortage in medical facilities also had serious implications for rural economies. Local healthcare services are a significant economic development asset in rural communities in both employment and in related purchases of local goods and services. The loss of these facilities was a significant blow to their local economies.

## Congressional Response: the Flex Program.

When Congress enacted the Balanced Budget Act of 1997, it created the Medicare Rural Hospital Flexibility Grant Program as a response to the financial distress of rural hospitals. The Flex Program had five goals:

- Establish state-wide rural health plans;
- Assist hospitals interested in being designated and certified as CAHs;
- Develop and strengthen hospital networks;
- Improve quality of care; and
- Improve emergency medical services (EMS) in rural communities.

Most importantly, small rural hospitals certified as Critical Access were provided with reasonable cost-based reimbursement for Medicare acute inpatient and outpatient services. At a time when Medicare nationally was moving to a prospective payment system for medical services, which pays a fixed cost based on a regional average and type of medical condition and would severely limit the viability of small rural hospitals, this Flex Program appeared to be a promising survival tactic for rural medical facilities and healthcare systems.

Each state has a grant program to facilitate CAH implementation and continuation for small, non-metropolitan hospitals that are at least 35 miles from another hospital or are designated by their state network organization as necessary providers. The original legislation limited CAH facilities to keeping patients no more than 96 hours; having 15 acute care beds and an additional 10 swing beds; and requiring that emergency care be offered 24/7. In addition, each CAH should be part of a network with at least one acute care hospital and work with an appropriate organization for credentialing and quality assurance activities. As a result of the Medicare Prescription Drug, Improvement and Modernization Act of 2003, several key changes were made in the Flex Program. The reimbursement to CAHs was increased to 101% of reasonable costs for inpatient, outpatient, and swing bed skilled nursing services. As of January 1, 2004, each CAH may now have 25

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acute care beds and CAHs are also allowed to establish a distinct part unit such as psychiatric and substance abuse units. Effective January 1, 2006, states' authority to waive distance and necessary provider designation has been eliminated.

The states' Flex program activities have evolved since 1997 to support CAH capital improvement, planning, recruitment and retention of health professionals, quality improvement, tele-health and telecommunications in CAHs, and local and regional planning and staff training with average awards to states of about $500,000. All states are required to evaluate their state Flex Programs, and the most common evaluation activity through 2004 has been to assess the financial impact of CAH conversion on hospital stabilization and rural economies.

### National Implementation Results.

The Rural Hospital Flexibility Program National Tracking Team is responsible for monitoring the success and impact of CAHs. After the first year of the program, the Team identified key factors that predict successful conversion: changes CAHs made to internal systems, community support, assistance received from state agencies, help from their network hospital, and consulting support. In 2002, the Team reported significant changes in the rural health landscape attributable to this initiative, including the fact that CAHs were performing as well or better than other small rural hospitals on a number of financial indicators. CAHs tended to be the smallest hospitals in the worst financial shape. Nationwide, 55% of CAHs were in counties designated both as a Medically Underserved Area and a Health Professional Shortage Area. In 2003, the Team found that increases in Medicare payments exceeded $500,000 for 1999 CAH converters and that total profit margins rose from -2.5% to an average of 2.3% one year after conversion. For FY 2000 converters, profit margins increased from an average of 0% to 2%. However, half of the increase in facility revenue was due to increases in non-Medicare resources.

The April 2002 *Rural Hospital Flexibility Program Tracking Report for Year Three*[1] (the 2001 federal fiscal year) noted that all states planning to participate in the Flex program had approved plans that allow them to do so. There was steady growth in conversions in the prior year and the largest cluster of CAH converters is in the Midwest. This report also indicates that converter hospitals were generally smaller than non-converters and had higher average pre-conversion costs and poorer Medicare margins. In that report, Illinois had 19 CAHs, all of which had been designated as necessary providers.

A 2003 study of 15 Oklahoma CAHs for the first year after conversion was the first statewide impact study.[2] Study results included minimal drops in licensed beds, full-time employees, average daily census, length of stay, and monthly payroll. Medicare discharge activity showed a small post-conversion increase. All hospitals reported an operating loss for the year prior to conversion, 10 hospitals reported much smaller losses, while five reported either no change (one) or an increase in revenues. The authors found that converting to CAH status was a positive step in keeping rural hospitals going.

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[1] Accessed at www/flexmonitoring.org/publications.

[2] Lawler, MK, Doeksen, GA and Schott V. Impact of Conversion to Critical Access Hospital Status for Oklahoma's Rural Hospitals. J Rural Health. 19(2), 2003, pp. 135-138.

# Background of the Critical Access Hospital Program

The North Dakota Medicare Rural Flexibility Program reported that conversion to CAH status for 28 hospitals made a significant contribution to the economic base in rural areas of the state.[3] The direct payroll was $57.9 million and the hospitals employed nearly 2,500 workers. Rural hospitals are frequently the first or second largest employer in a rural community and often represent 10% or more of direct employment in a rural town.

Kentucky Rural Healthworks studied the economic impact of CAH conversion on 20 rural Kentucky counties and in 2004 reported on output/sales, labor income and employment.[4] They found significant direct and indirect impacts from the CAHs in 2000 on their local county economies. Vendors selling to the 20 CAHs received nearly $200 million and spending by the other merchants and dealers who supply the vendors created an indirect impact of $31.5 million (local industry-to-industry transactions). CAH employees spent an additional $54 million in induced impact in their counties. The total economic impact of $285.5 million to the local communities would have been lost if these hospitals had been forced to close.

The Flex Monitoring Team issued its second financial data report in October 2005 using secondary data for those CAHs with at least 360 reporting days.[5] Illinois had 20 hospitals in that category. The profitability indicators in that report measured the ability of the CAHs to generate the financial return required to replace assets and meet increases in service demands. The total profitability margin for Illinois CAHs was 3.77%, which compared favorably with the national average of 2.32%. Cash flow margins and average daily census indicators also suggested that Illinois was performing better than other Flex Program states:

| | Illinois | National |
|---|---|---|
| Cash flow margin | 7.47% | 4.04% |
| Average daily census - swing beds | 2.18 | 1.52 |
| Average daily census - acute beds | 5.04 | 3.12 |

The Team's analyses indicated that cost-based reimbursement improved the bottom line for CAHs by allowing them to make capital improvements, add services, and increase wages. Six states reported positive effects even greater than predicted, while five states, including Illinois, reported that conversion to CAH status saved several hospitals from financial failure. However, three states noted that this new method of payment was not sufficient in and of itself to bring hospitals starting from loss positions to profitability.

[3] North Dakota Flex Steering Committee. North Dakota Medicare Rural Flexibility (Flex) Program: Working with Critical Access Hospitals to Stabilize the Rural Health Delivery System. Accessed at http://www.med.und.nodak.edu/depts/rural/cah/flex_prog/.

[4] Kentucky Rural Health Works. The Economic Impact of Critical Access Hospitals on 20 Rural Kentucky Counties. University of Kentucky - College of Agriculture, Cooperative Extension Service. 2004.

[5] Rural Health Research Centers. Flex Monitoring Team Data Summary Report No. 1, CAH Financial Indicators Report: Summary of Indicator Medians by State. October 2005. Accessed at http://www.flexmonitoring.org/publications

# Background of the Critical Access Hospital Program

## CAH Program in Illinois.

By the end of the December 2005 designation period, Illinois had 51 CAH hospitals. These are identified in the map on the following page. A demographic analysis of the 44 counties in which these CAHs are located shows that these hospitals are serving the most rural counties in the state. (It should be noted that CAHs also often serve residents from adjacent counties.) Taken together, the average proportion of rural population in 2005 in these counties was 35.6% or almost three times that of Illinois as a whole (12% of the statewide population resides in rural settings).[6] The estimated average rate of population growth from 2000 to 2005 for the CAH counties was 2.2%, significantly lower than the 2.7% growth rate for the state as a whole.

Age data show that the CAH counties had higher concentrations of the elderly and fewer young people than in the state as a whole. In 2005, Illinois' statewide population included an estimated 11.5% people over 65 years of age and 26.1% who were under 18 years old. By contrast, the CAH counties averaged 14.1% of residents over 65 and 25.4% under 18. At $40,045, median household income was more than one-fifth lower than the statewide median.

The contrast in the population that CAHs serve is even more apparent when comparing the hospitals' service areas to county and statewide data. Thirty-four of Illinois' CAHs responded to the surveys developed for this study and provided the ZIP codes that constitute their primary markets. These CAHs are starred on the map on page 12. The estimated demographic characteristics of these primary markets are presented in Appendix A. These data indicate that the areas directly served by CAHs are more rural, experiencing less population growth, and have greater concentrations of seniors and fewer young people than for all CAH counties combined. The only departure from these trends is in median household income, as the median for CAH market areas, while still less than the state as a whole, is higher than that for all CAH counties. This may be due to the fact that several CAHs are actually in metropolitan growth counties where incomes are likely to be higher. A summary table comparing these data is presented below.

It should be noted that the negative change in population in the CAH primary market areas reflects the fact that 26 of the 34 CAH market areas experienced a net population loss between 2000 and 2005. The eight markets that gained population did not experience sufficient growth to generate an overall average increase.

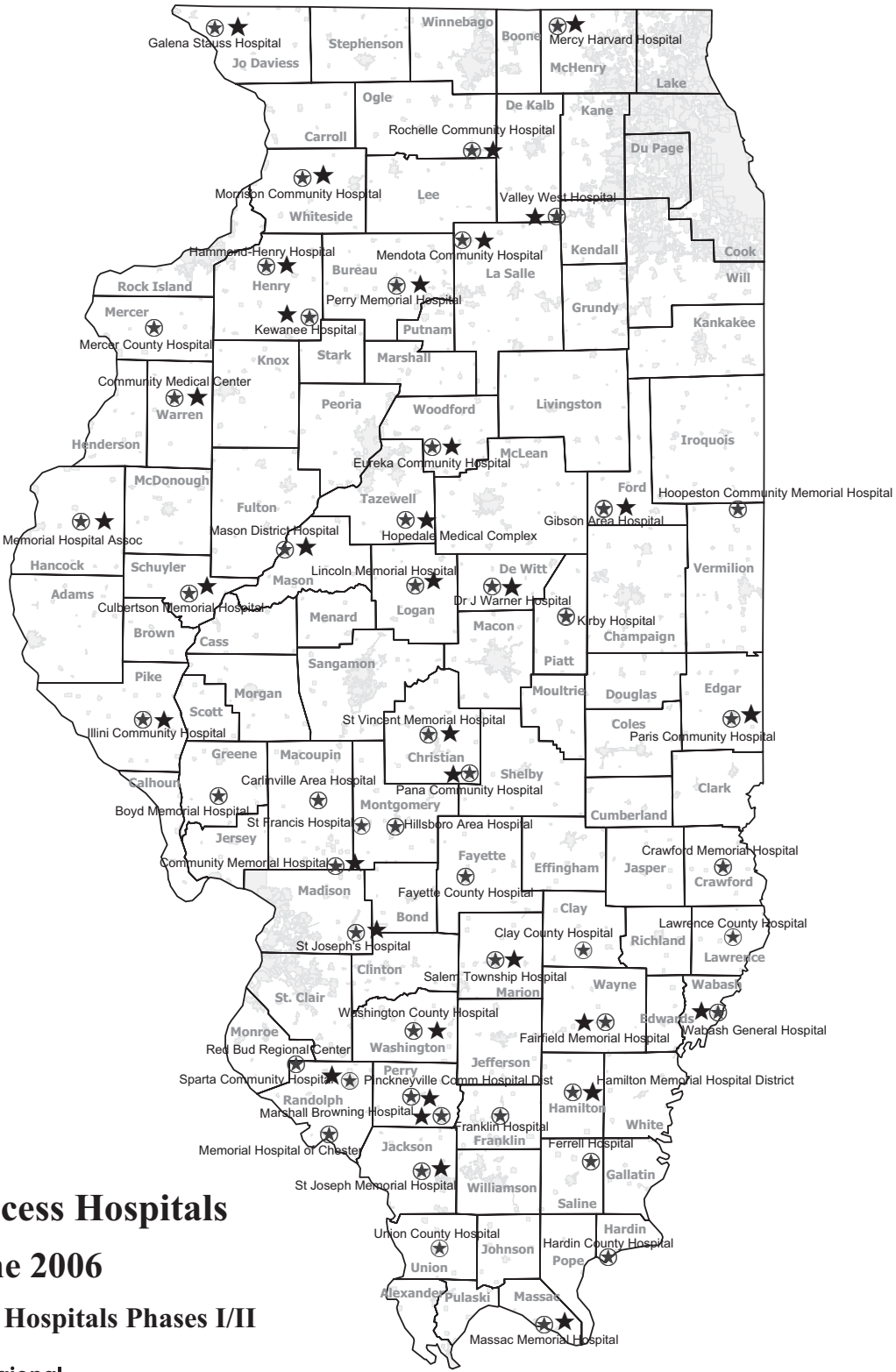
**Table 1**
**Demographic Characteristics: Illinois, CAH Counties and CAH Market Areas**

| Variable | Statewide | CAH Counties | CAH Primary Market Areas |
|---|---|---|---|
| 2005 Rural Population | 12.0% | 35.6% | 42.2% |
| Population Change 2000-2005 | 2.7% | 2.2% | -0.91% |
| 2005 Population Under 18 | 26.1% | 25.4% | 24.6% |
| 2005 Population Over 65 | 11.5% | 14.1% | 15.5 |
| Median Household Income | $50,350 | $40,045 | $42,531 |

Source: Easy Analytic Software, Inc., 2005

[6] The Census Bureau defines "rural" as "places of less than 2,500" and areas outside of incorporated and census-designated places.

# Background of the Critical Access Hospital Program




## Critical Access Hospitals

### June 2006

★ Responding Hospitals Phases I/II

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# Study Methodology

A variety of data specific to the operation of CAHs was needed to address the four main study questions. An initial on-line survey instrument was developed by the NIU team in consultation with ICAHN and its Advisory Board. This instrument requested information on operating revenue, expenses, employment, patient loads, payor mix, and capital expenditures for the year prior to CAH designation and all subsequent years. Additional questions were designed to capture qualitative information about the overall economic effects of CAH designation on the hospitals and the communities they serve.

The surveys were e-mailed to all Illinois CAHs in November 2005. Of the 51 Illinois CAHs that were designated by December 31, 2005, nine had been operating for less than one year and another had experienced a change in management and was unable to provide historical operating data. Of the remaining 41 CAHs, 34 completed and returned the survey for an overall response rate of 82.9%. As evident in the map on page 10, the 34 CAHs that responded to the study survey represent every region of the state. To ensure that the full effects of CAH designation on hospital operation were being measured in this study, only those hospitals that had been operating for at least two years as a CAH were used in a number of the pre- and post-status comparisons. Twenty-five of the 34 CAHs responding to the Phase I survey fell into this category of "mature" hospitals. The balance of the CAHs that had acquired CAH status after January 2004 is referred to as "recently designated." The text and tables in the report indicate which set of CAHs are being referenced throughout the analysis.

An economic input/output model was used to estimate the impact of the general healthcare sector and the responding CAHs on the local economy. IMPLAN software used county data to generate the likely indirect and induced impacts of business outputs (sales and revenue) and employment on the local economies, based on direct impacts provided by the CAH hospitals.[7] Because CAHs often serve adjacent counties, using the host county to define "local economy" has generated conservative impact estimates for CAHs that are located near a county border.

Changes in access to hospital services and in service provision since CAH conversion were examined using historical operational data and qualitative survey information. Preliminary findings from this analysis suggested that additional information was needed to better understand the impact of CAH designation on the type, direction (i.e. increase, decrease or no change), and extent of changes in services. Additional insight was also needed to understand the effects of CAH status on profitability, staffing changes, and relationships with other healthcare providers in the area.

A second survey was developed to collect this additional information, and in March 2006 was sent to the 34 CAHs that participated in the first survey. Twenty-two of those CAHs responded (64.7% of the Phase I hospitals). Of these, 15 had been operating for at least two years as CAH and the remaining were more recently designated.

A third source of information was obtained from five of the mature CAHs that volunteered to provide data on changes in inpatient and out-patient market share since designation. These hospitals were subscribers to Illinois' COMPdata comprehensive healthcare information system that is supported by the Illinois Hospital Association.

For confidentiality purposes, no individual hospitals are identified by name in this report.

[7] This purpose of an input/output model is to analyze the interdependence of industries in an economy through market-based transactions. It describes how a commodity, such as healthcare, flows from producers (i.e. the CAH) to intermediate and final consumers. Industries producing goods and services for final demand purchase goods and services from other producers. These other producers, in turn, purchase goods and services. This buying of goods and services continues until leakages from the region stop the cycle. The resulting sets of multipliers describe the change of output for every local industry caused by a $1.00 change in demand for healthcare.

# Findings

## IMPACT ANALYSIS - MICRO LEVEL

The impact of becoming a CAH on a hospital may be measured in a variety of ways. Common measures of the economic impact of CAH status include changes in revenues and profitability, employment, services, payor mix, and capital expenditures. Of the 34 hospitals that responded to the survey for this study, 25 hospitals had two or more years operating as a CAH. These 25 "mature" hospitals were the primary focus of the micro level findings as it was assumed that it would take at least two years for the full operational effects of designation to be realized. However, data provided by more recently designated CAHs have been considered throughout this report.

The calendar year of designation for the 25 mature CAHs was as follows:

6 - 2000

6 - 2001

5 - 2002

7 - 2003

1 - 2004 (January only)

The remaining nine CAHs participating in this study were designated between January of 2004 and December 31, 2005.

It is important to note that not all CAHs responded to all of the survey questions. The number of responding hospitals is specified in each of the following tables and the accompanying text.

### Revenues and Profitability

***Key Findings**:*

1. *CAH status generally resulted in immediate and sustained improvements in revenues for almost every hospital that participated in the study, and in improved profitability for the majority of hospitals. However, despite these financial improvements, a number of hospitals reported an ongoing struggle with financial solvency.*
2. *Increases in Medicare reimbursement and in charges were the two main sources of revenue growth identified by respondents. Increased admissions were the third largest reason for improved revenue.*

The impact of CAH designation was analyzed for 23 of the 25 hospitals that had two or more years experience operating as a CAH as of January 2006. Two hospitals did not provide historical financial information. Of these 23 mature CAHs, 19 experienced increased revenue averaging $1,813,293 or 13.7% during the first year of operation as a CAH, with increases ranging between 0.3% and 25.4%. Table 2 presents the distribution of these increases.

# Findings

**Table 2**
**Percentage Increase in Total Net Operating Revenue for Mature CAHs**
**During First Year After Designation**

| Percent Increase | Number of Hospitals | % of Total |
|---|---|---|
| 0.0 – 5.0 | 2 | 10.5 |
| 5.1 – 10.0 | 5 | 26.3 |
| 10.1 – 15.0 | 4 | 21.0 |
| 15.1 – 20.0 | 5 | 26.3 |
| Over 20.0 | 3 | 15.8 |
| Total | 19 | 99.9* |

*Percentages do not total to 100.0 due to rounding

Of these 19 CAHs, 13 reported steady annual increases in revenues for all fiscal years since designation. Five other CAHs experienced revenue increases in all but one or two of their fiscal years, and one CAH did not report revenue for all post-CAH years. The remaining four CAHs experienced an average loss of 5.1% and -$833,389 in revenues in the first year of operation as a CAH. However, three of these four reported revenue increases in all but one or two subsequent years and were profitable by 2005.

A number of reasons were given for increases in revenue by the Phase II respondents. Increases in Medicare reimbursements and increased charges were credited by 14 hospitals each for growth in revenues. Eight CAHs reported increases resulting from added services, and an assortment of other sources of revenue were identified: user taxes (a provider tax and a bed tax), increased admissions, Request for Anticipated Payments under Medicaid, an increase in the commercial base, and a reorganization.

The increases in net operating revenue that occurred for all but one of these 23 mature hospitals after CAH designation are associated with significant and immediate improvements in profitability. As indicated in Table 3, for the fiscal year prior to designation, 10 of the 23 mature CAHs reported a net loss that averaged a median of $476,757. Of the 13 hospitals that were profitable in that pre-CAH year, the median profit was $442,011. Profitability changed markedly in the year following designation when all but one CAH achieved profitability and the median profit increased by 82.8%.

**Table 3**
**Change in Profitability for Mature CAHs**
**Between Fiscal Year Prior to CAH Designation and FY 2005**

| | Pre-CAH | One Year Post-CAH | 2005 |
|---|---|---|---|
| **Hospitals with Net Profit** | | | |
| - Number | 13 | 22 | 20 |
| - Range | $4,850 - $1,113,519 | $19,692 - $3,690,624 | $35,467 - $4,214,778 |
| - Median | $442,011 | $808,031 | $975,200 |
| **Hospitals with Net Loss** | | | |
| - Number | 10 | 1 | 3 |
| - Range | ($219,948) - ($1,632,255) | n/a | ($499,259) - ($1,698,777) |
| - Median | ($476,757) | ($835,573) | ($741,491) |

# Findings

These profitability improvements of the mature CAHs have been largely maintained through FY05. Twenty of the 23 mature CAHs reported net profits for that year with a median of $975,200. However, CAH designation is no guarantee of financial solvency. While increased revenues occurred for all reporting CAHs, in three instances they were insufficient to bring these hospitals to profitability or keep them there. One additional mature CAH reported a small profit margin of less than $36,000 for FY05.

Similar positive short-term financial impacts are reported by the CAHs that were designated after January 2004. Although two hospitals did not report profitability data for FY04, by FY05 six netted a median profit of $1,209,509, almost 25% higher than the comparable median of the mature CAHs. Two of these hospitals had not reached net profitability in that first year as a CAH. These impacts are summarized below in Table 4.

**Table 4**
**Change in Profitability for Recently-Designated CAHs - FY04 to FY05**

| | FY04[a] | FY05[b] |
|---|---|---|
| **Hospitals with Net Profit** | | |
| - Number | 4 | 6 |
| - Range | $174,4,83 - $1,387,650 | $553,680 - $3,527,875 |
| - Median | $231,922 | $1,209,509 |
| **Hospitals with Net Loss** | | |
| - Number | 3 | 2 |
| - Range | ($1,521,583) - ($2,657,604) | ($160,890), ($3,208,519) |
| - Median | ($2,065,863) | n/a |

[a] Two CAHs did not report FY04 profitability data
[b] One CAH did not report FY05 profitability data

Additional insights regarding the impact of CAH designation on profitability were provided by 20 of the 22 hospitals that responded to the Phase II survey. The chief executive and financial officers that completed this survey described the impact as follows:

- 7 (35%) would no longer exist due to their seriously weakened financial situation;
- 8 (40%) would be operating but struggling; most would have to reduce staff and services;
- 2 (10%) would be operating but using their reserves or endowment to do so; and
- 3 (15%) would have continued operating.

# Findings

## Payor Mix

### Key Findings:

3. *Changes in payor mix differed for CAH inpatients and outpatients. Following designation, inpatient changes included decreased reliance on Medicare and increased payments from the self-insured (self-payors). Outpatient changes included increases in both Medicare and Medicaid payments and a decrease in third party payments.*
4. *The patient revenues generated by this payor mix enabled a majority of CAHs to cover operating costs in 2005. However, only third party payors reimbursed at a rate for patient services that consistently exceeded expenses.*
5. *The greatest shortfall in reimbursement is by Medicaid, followed by Medicare and the self-insured. In most cases, the hospitals receive net revenue from third party payors, suggesting a fair amount of cross-subsidy among payors.*

As seen in Table 5, payor mix varies significantly between inpatients and outpatients for the 23 hospitals that provided this information for 2005. Medicare paid for approximately two-thirds of all inpatients, followed by third party payors. Outpatient payors were dominated by Medicare and third parties.

Changes in both inpatient and outpatient payor mix occurred in the period following CAH designation. The most significant changes were for outpatients, with increases in both Medicare and Medicaid payments and concomitant decreases in third party payors. The most noteworthy change for inpatients was a decrease in Medicare and related increase in self payors.

**Table 5**
**Change in Percentage of Payor Mix for Mature CAHs**
**Between Fiscal Year Prior to CAH Designation and FY 2005**

| Payor Type | Inpatient | | Outpatient | |
|---|---|---|---|---|
| | No. of CAHs | Average | No. of CAHs | Average |
| Medicare – Pre CAH | 19 | 67.4 | 19 | 40.0 |
| Medicare – 2005 | 23 | 63.7 | 23 | 42.5 |
| Medicaid – Pre CAH | 19 | 7.0 | 19 | 9.5 |
| Medicaid – 2005 | 23 | 7.1 | 23 | 11.7 |
| Third Party – Pre CAH | 19 | 17.8 | 19 | 40.7 |
| Third Party – 2005 | 23 | 17.4 | 23 | 37.8 |
| Self Pay – Pre CAH | 19 | 4.7 | 19 | 6.9 |
| Self Pay – 2005 | 23 | 6.7 | 23 | 6.7 |

An important aspect of payor mix is reimbursements relative to expenses. While this may be viewed in a variety of ways, a common practice is to look at expenses as a percent of gross revenue (charges). This represents the level of net patient revenue needed to cover operating expenses. For the 30 CAHs that provided the requested data, the average ratio of operating expenses to gross patient revenue was 61.2%. The highest value was 87.4% and the lowest was 40.7%.

# Findings

Another key aspect of payor mix is whether the net revenues generated by these reimbursements cover the hospitals' operating costs. Financial information provided by 32 of the CAHs indicates that 18 (56.2%) had total net patient revenues that met or exceeded total operating expenses for FY05.

It is also useful to consider the ratio of expenses to gross patient revenue by payor category. Table 6 presents these data for 15 mature and recently designated CAHs that provided the requested information. Only third party payors provided a reimbursement rate for out-patient services that exceeded expenses for all seven hospitals. Overall, the greatest shortfall is by Medicaid, followed by Medicare and the self-insured. In most cases, the hospitals receive net revenue from third party payors.

**Table 6**
**2005 Reimbursement Coverage by Payor Class**

| Payor Class | Covered Expenses | Did Not Cover Expenses |
|---|---|---|
| Inpatient: | | |
| Medicare | 9 | 6 |
| Medicaid | 1 | 14 |
| Third party | 14 | 1 |
| Self-insured | 5 | 9 |
| Outpatient: | | |
| Medicare | 3 | 12 |
| Medicaid | 0 | 15 |
| Third party | 15 | 0 |
| Self-insured | 5 | 9 |

The analysis suggests that there is a fair amount of cross-subsidy among payors. It appears that third party payors are covering a larger share of the operating costs of CAH hospitals than other payor types.

# Findings

## Employment

### Key Findings:

6. *CAHs are a significant employer in rural Illinois communities. CAH designation enabled the majority of hospitals to increase their staffing levels, primarily in direct care positions. Significant quality improvements were attributed to these additional positions.*
7. *A number of hospitals were able to add clinics and needed patient and community services, expansions that account for much of the increase in direct patient care personnel.*

Twenty-eight CAHs provided employment data in their completed Phase I survey. These hospitals reported an overall average of 212.4 full-time employees (FTEs), an average that was slightly lower for the mature CAHs (210.4) than for the recently designated ones (217.4). Over 80% of the CAHs had more than 150 employees, representing a significant employer in rural Illinois communities. Table 7 summarizes the number of FTEs reported for 2005 for all participating CAHs.

**Table 7**
**2005 Full-Time Employees for Mature and Recently-Designated CAHs**

| No. of Employees | Mature CAHs | | Recently Designated CAHs | | Total | |
|---|---|---|---|---|---|---|
| | No. | % of Total | No. | % of Total | No. | % of Total |
| Under 150 | 3 | 15.0 | 2 | 25.0 | 5 | 17.9 |
| 150-200 | 7 | 35.0 | 1 | 12.5 | 8 | 28.6 |
| 201-250 | 6 | 30.0 | 3 | 37.5 | 9 | 32.1 |
| 251-300 | 2 | 10.0 | 1 | 12.5 | 3 | 10.7 |
| Over 300 | 2 | 10.0 | 1 | 12.5 | 3 | 10.7 |
| Total | 20 | 100.0 | 8 | 100.0 | 28 | 100.0 |

CAH designation enabled a number of these hospitals to expand employment. Fifteen of the 20 mature CAHs that reported employment data increased their FTEs between the fiscal year prior to designation and 2005. The average increase for these 15 hospitals was 27.1 FTES with a range between 2 and 54 FTEs, and the average percentage increase was 15.0%. Several respondents indicated that CAH designation enabled them to reorganize and realize improved staffing efficiencies. Four CAHs reported decreases in FTEs over that period averaging 39.7 FTEs and 13.0%. One CAH reported no change in employee levels.

Responses to the Phase II survey described the type and impact of these added positions for 21 CAHs. Almost three-quarters of the positions were in direct patient care (i.e. physicians, nursing staff, and therapists) and administration and support. As will be seen in the next section describing the impact of CAH status on services, a number of hospitals were able to add clinics and needed patient and community services, expansions that account for much of this increase in direct patient care personnel.

# Findings

Another 20% of added FTEs were in lab services or pharmacy and maintenance and housekeeping. The most significant effect of these added positions was described as quality improvement in the following areas:

- patient care as a result of higher staff to patient ratios, improved morale and enhanced customer service;
- cleanliness of the facilities;
- the availability of services to the community; and
- improved financial and administrative systems.

Other effects of these additional staff included improved networking and collaboration and better process efficiency.

## Services

### Key Findings:

8. *The most significant change in service levels in hospitals that had been designated as CAH for at least two years was in outpatient admissions, which grew by an average of 50.9%. Increased admissions were explained, in part, as resulting from facility improvements and expansions and the hiring and retention of quality medical personnel that resulted from CAH designation.*
9. *Designation as a Critical Access Hospital allowed for the maintenance of patient and community services that were in financial jeopardy and the addition of specialty clinics and services that focused on the emerging healthcare needs of their community.*
10. *Many CAHs attributed improved services to the increased collaboration and communication with other regional providers that occurred since designation. These enhanced relationships allowed them to provide more services with existing resources.*
11. *CAH designation enabled many hospitals to address deferred capital improvements, including a number of life/safety projects and routine repairs. These increased capital investments in facility renovation and expansion, replacement of obsolete medical equipment, and the purchase of modern diagnostic and imaging equipment were credited with improving the ability of CAHs to deliver quality services to their communities.*
12. *COMPdata provided by five CAHs illustrate the breadth and versatility of the medical services these hospitals provide to their communities. In 2005, they treated an average of 108 different diagnoses for inpatients 65 and older and 91 diagnoses for those under 65. Moreover, there were only one or two cases reported for almost two-thirds of these diagnostic categories for both age groups.*
13. *The rural elderly are primary users of the CAHs. Individuals 65 and older represent 14.1% of the residents of the CAH counties, but made up 65.2% of all 2005 inpatient admissions for the five case study hospitals.*

# Findings

## Inpatient Census.

The average daily inpatient census for 31 of the participating CAHs in 2005 was 9.2. This was slightly lower (8.6 patients less) for the mature hospitals and approximately one patient higher (10.3) for the recently designated hospitals. The distribution of these data is presented in Table 8.

**Table 8**
**2005 Average Daily Inpatient Census for Mature and Recently-Designated CAHs**

| Daily Inpatient Census | Mature CAHs | | Recently Designated CAHs | | Total | |
|---|---|---|---|---|---|---|
| | Number | % of Total | Number | % of Total | Number | % of Total |
| Under 5.0 | 4 | 16.0 | 2 | 22.2 | 6 | 17.6 |
| 5.1-10.0 | 10 | 40.0 | 1 | 11.1 | 11 | 32.4 |
| 10.1-15.0 | 8 | 32.0 | 4 | 44.4 | 12 | 35.3 |
| Over 15.0 | 1 | 4.0 | 1 | 11.1 | 2 | 5.9 |
| Unavailable | 2 | 8.0 | 1 | 11.1 | 3 | 8.8 |
| Average | 8.6 | | 10.3 | | 9.2 | |
| Total | 25 | 100.0 | 9 | 99.9* | 34 | 100.0 |

*Total does not add to 100.0 due to rounding

As indicated in Table 9, the majority of mature CAHs that reported historical inpatient census data indicated a decrease that averaged 2.6 inpatients between the fiscal year prior to designation and 2005. The five hospitals that experienced a net increase in inpatients averaged less than one additional patient.

**Table 9**
**Changes in Average Daily Inpatient Levels for Mature CAHs Between Fiscal Year Prior to CAH Designation and FY 2005**

| | Net Increase Since Designation | Net Decrease Since Designation | No Change | Data Not Available |
|---|---|---|---|---|
| Number of CAHs | 5 | 15 | 2 | 3 |
| Average Change in Number of Inpatients | 0.8 | -2.6 | 0 | |
| Range | 0.3 – 1.1 | -0.5 to -7.8 | 9.9-10.0 | |

*One CAH reported no change in the average daily inpatient census

# Findings

## Emergency Department Visits.

In 2005, the CAHs participating in this study reported an average of 6,116 emergency department visits in 2005. As indicated in Table 10, this average was 2.0% less for mature CAHs and 6.3% higher for the recently designated CAHs.

**Table 10**
**2005 Emergency Department Visits**

| Annual ED Visits | Mature CAHs | | Recently Designated CAHs | | Total | |
|---|---|---|---|---|---|---|
| | Number | % of Total | Number | % of Total | Number | % of Total |
| Under 3,000 | 4 | 16.0 | 0 | 0 | 4 | 11.7 |
| 3,001-6,000 | 10 | 40.0 | 4 | 44.4 | 14 | 41.2 |
| 6,001-9,000 | 3 | 12.0 | 4 | 44.4 | 7 | 20.6 |
| 9,001-12,000 | 5 | 20.0 | 0 | 0 | 5 | 14.7 |
| Over 12,000 | 2 | 8.0 | 0 | 0 | 2 | 5.9 |
| Unavailable | 1 | 4.0 | 1 | 11.1 | 2 | 5.9 |
| Average | 5,992 | | 6,498 | | 6,116 | |
| Total | 25 | 100.0 | 9 | 99.9* | 34 | 100.0 |

*Total does not add to 100.0 due to rounding

Table 11 shows that for the mature CAHs, emergency department activity was almost as likely to decrease as increase in the period following designation. Hospitals that experienced increases in ED visits had on average a 20.0% increase, while those that had decreased visits averaged a 10.3% reduction.

**Table 11**
**Changes in Emergency Department Visits for Mature CAHs**
**Between Fiscal Year Prior to CAH Designation and FY 2005**

| | Net Increase Since Designation | Net Decrease Since Designation | Data Not Available |
|---|---|---|---|
| Number of CAHs | 12 | 11 | 2 |
| Average Change in No. | 1,157 | -525.7 | |
| Range | 117-4,379 | -75 to -1,635 | |
| Average Change in % | 20.0% | -10.3% | |
| Range | 1.3% - 52.1% | -1.3% to -26.3% | |

# Findings

## Outpatient Admissions.

The CAHs participating in this study reported an average of 807 outpatient admissions in 2005. Once again, the mature hospitals reported a lower volume than the recently designated CAHs: 83 fewer admissions (10.2%) for the mature hospitals compared to 237 or 29.3% more for the recently designated ones. Table 12 summarizes the 2005 annual outpatient admission information.

**Table 12**
**2005 Annual Outpatient Admissions**

| Annual Admissions | Mature CAHs | | Recently Designated CAHs | | Total | |
|---|---|---|---|---|---|---|
| | Number | % of Total | Number | % of Total | Number | % of Total |
| Under 250 | 2 | 8.0 | 0 | | 2 | 5.9 |
| 251-500 | 7 | 28.0 | 1 | 11.1 | 8 | 23.5 |
| 501-1,000 | 9 | 36.0 | 3 | 33.3 | 12 | 35.3 |
| 1,001-1,500 | 2 | 8.0 | 3 | 33.3 | 5 | 14.7 |
| Over 1,500 | 3 | 12.0 | 1 | 11.1 | 4 | 11.8 |
| Unavailable | 2 | 8.0 | 1 | 11.1 | 3 | 8.8 |
| Average | 724 | | 1,044 | | 807 | |
| Total | 25 | | 9 | 99.9* | 34 | 100.0 |

*Total does not add to 100.0 due to rounding

One possible explanation for the difference in annual averages is that the recently designated hospitals historically had adequate outpatient patient loads -- and associated revenues -- that enabled them to operate for a longer period without seeking CAH status. This appears to be supported by the data in Table 13 for mature CAHs. Two-thirds of the reporting mature hospitals indicated they increased their outpatient admissions by an average of 50.9% since designation. The one-third that experienced decreases in this activity did so by an average of 21.4%.

**Table 13**
**Changes in Annual Outpatient Admissions for Mature CAHs**

| | Net Increase Since Designation | Net Decrease Since Designation | Data Not Available |
|---|---|---|---|
| Number of CAHs | 14 | 7 | 4 |
| Average Change in No. | 228.9 | -198.7 | |
| Range | 20 – 597 | -58 to -580 | |
| Average Change in % | 50.9% | -21.4% | |
| Range | 3.3% - 147.0% | -7.0% to -46.4% | |

# Findings

Phase II survey respondents indicated that by improving their economic viability, CAH status enabled them to maintain services that were in financial jeopardy, attract and retain quality healthcare personnel, and improve and expand their facilities and services. Eight CAHs added a total of 18 specialty clinics that focused on community healthcare needs (e.g. sleep disorder, rural health, cardiac, OB/GYN, ear/nose/throat, gastro-intestinal, neurology, oncology, pain management, and vascular).

A variety of patient and community services were also added, including testing and diagnostic services, lithotripsy, diabetes management, wound care, cataract surgery, hematology services, podiatry and orthopedic treatment, and senior fitness. Many community education activities were described, including underage drinking, diet and exercise, elder awareness, men's and women's wellness, bicycle helmet safety, obesity, teen osteoporosis, health and high school job fairs.

One-third of the Phase II respondents credited improvements in service provision in part to the increased collaboration and communication occurring after CAH designation. These enhanced relationships allowed them to provide more services within their limited budgets. These respondents also described a number of services that they were able to maintain as a result of CAH status, including home healthcare, MRI, free health screenings, support groups, and a variety of wellness events. Conversely, two hospitals reported that they closed a total of five clinics and one eliminated its obstetrics services.

### Capital Improvements.

Significant increases in renovating and expanding hospital facilities, replacing obsolete medical equipment, and purchasing modern diagnostic and imaging equipment improved the ability of CAHs to deliver quality healthcare services to their communities. Between FY99 and FY05, the 28 CAHs that provided capital expenditure information invested a total of $134,717,345 in such improvements. These improvements fell into five categories:

- Routine upgrades of the physical plant including life/safety improvements and heating, ventilating, and air conditioning improvements;
- Facility expansion and renovation (e.g. additional emergency department, operating room, and medical office building space), assisted living units
- Medical equipment such as CT scanners, anesthesia monitors, hematology analyzer, telemetry, and devices for ultrasound, x-ray, mammography, and other diagnostic and imaging purposes;
- Information and telecommunications system upgrades;
- Medical vehicles (e.g. ambulance and delivery truck for home medical equipment)

Average expenditures for all participating CAHs increased over time, with the average for mature hospitals increasing by a factor of 4.8 between 1999 and 2005. A number of the chief executive and financial officers completing the survey noted that designation enabled them to address significant pent-up capital needs. Total capital investments by fiscal year for mature and the recently designated hospitals are presented in Table 14.

# Findings

**Table 14**
**Capital Expenditures for Participating CAHs**

| | Mature CAHs | | | Recently Designated CAHs | | |
|---|---|---|---|---|---|---|
| **Fiscal Year** | **No. Reporting** | **Expenditures** | **Average Expenditure** | **No. Reporting** | **Expenditures** | **Average Expenditure** |
| 2005 | 21 | $29,279,628 | $1,394,268 | 7 | $19,127,593 | $2,732,513 |
| 2004 | 21 | 30,594,502 | 1,246,881 | 5 | 5,588,046 | 1,117,609 |
| 2003 | 20 | 16,491,483 | 824,574 | | | |
| 2002 | 20 | 19,667,520 | 983,376 | | | |
| 2001 | 11 | 6,984,206 | 634,928 | | | |
| 2000 | 8 | 6,405,456 | 800,682 | | | |
| 1999 | 2 | 578,911 | 289,455 | | | |
| Total | 21 | $110,001,706 | | 7 | $24,715,639 | |

## Case Studies: Changes in Admissions and Market Share.

At the beginning of the second phase of this project, all of the hospitals that completed the initial survey were asked if they would volunteer to provide case study information regarding changes in market share for various healthcare services and client populations since obtaining CAH status. Five hospitals generated market reports using their online COMPdata that compared changes in the number of cases and market share for two age cohorts: patients 65 years of age or older, and patients younger than 65. These changes were provided for the year (or closest available time period) prior to CAH designation and for 2005. Data were sorted by type of inpatient service using Diagnostic Related Group (DRG) codes and for outpatients using Current Procedural Terminology (CPT) codes.

Following are the major findings suggested by these data.

- CAHs provide a wide range of medical services for area residents of all ages. The older inpatient group displayed the widest range of medical needs with an average of 108 DRGs reported by the five CAHs in 2005. In that year, an average of 66 DRGs had only one or two cases reported for each of those diagnostic groups. For inpatients younger than 65, an average of 91 DRGs was reported in 2005. For this cohort, only one or two cases were reported for each of 62 DRGs, on average.
- The number of DRGs increased for older inpatients, with four CAHs reporting between 6 and 27 additional DRGs. The fifth CAH reported 30 fewer DRGs in 2005 than for the pre-CAH year. For inpatients under 65, two of the CAHs reported increases between 3 and 14 in the number of DRGs treated. The remaining three CAHs experienced declines in DRGs for younger inpatients ranging from 2 to 42.
- Despite this breadth of service, a relatively limited subset of DRGs and CPTs are represented within the higher admissions. All five CAHs served a similar core of DRGs (heart failure, pneumonia, pulmonary disease, and/or nutritional/metabolic disease) for inpatients 65 and older. For younger patients there was more variation in type of DRG, but the largest number of admissions (between 2.9% and 17.7%) were limited to 21 diagnostic categories.

# Findings

- Patients 65 and older represented the majority of pre-CAH and 2005 inpatients. Patients under 65 years of age comprised the larger outpatient caseload for both years.
- Changes in total inpatient cases increased in both age groups for four of the hospitals over the subject period. One CAH reported decreases of 41.0% in older inpatients and 50.1% for younger inpatients. Total outpatient cases decreased for individuals 65 and older for three of the four reporting hospitals. For younger outpatients, two hospitals showed increases in total cases and two reported decreases.
- Changes in market share for the larger diagnostic categories also differed between inpatients and outpatients and between age groupings. As shown in Table 15, outpatient admissions in the major CPTs (i.e. those accounting for at least 3% of admissions) were almost twice as likely to decrease as increase for both age categories. While losses still outnumbered gains for inpatients 65 or older, the percent of admissions accounted for by a major DRG were almost twice as likely to increase for the younger inpatients.

**Table 15**
**Changes in Market Share for Significant Diagnostic Categories***
**Pre-CAH to 2005**

| | Diagnoses that Gained in % of admissions | Diagnoses that Lost in % of admissions |
|---|---|---|
| - 65 & older | 9 | 16 |
| - under 65 | 7 | 13 |
| Inpatient - 65 & older | 19 | 28 |
| Inpatient - Under 65 | 22 | 12 |

*Includes CPTs and inpatient DRGs with at least 3.0% of total admissions

- With few exceptions, the four CAHs reporting outpatient data shared a common set of CPTs (digestive, integumentary and musculoskeletal) for outpatients in both age groups. Digestive or cardiovascular cases accounted for the largest percent of admissions for both age groups.

**Patients 65 and Older.** Individuals 65 and older made up 65.2% of the 2005 inpatient population for the five CAHs that provided COMPdata. When considering that this age cohort represents 14.1% of the residents of all CAH counties, it is apparent that the elderly are primary users of these facilities. Importantly, the net number of elderly inpatients increased by 367 or 17.5% for the five hospitals since CAH designation

National hospital discharge data indicate that the top three diagnoses for short-stay hospital patients 65 years and older include heart disease (21.4%), pneumonia (6.1%), and cerebrovascular disease (5.2%).[8] All five of the CAHs reported their most common reasons for admitting patients 65 and older were to treat those ailments. Average percentages of admissions were:

- 7.9% - Chronic obstructive pulmonary disease (range from 6.8 to 15.3%)
- 7.7% - Simple pneumonia and pleurisy (range from 4.9 to 11.6%)
- 7.5% - Heart failure and shock

[8] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *National Hospital Discharge Survey: 2003 Annual Summary with Detailed Diagnosis and Procedure Data*, May 2006

# Findings

## IMPACT ANALYSIS - MACRO LEVEL

## Key Findings:

14. *CAH designation has enabled small, rural Illinois hospitals to stabilize financially and maintain or expand quality healthcare services to their communities. The continued existence of these medical facilities has a significant local economic impact in outpatient revenues generated through hospital expenditures and through salaries.*
15. *The mature CAHs that provided financial data for this report experienced an annual increase of 9% in net revenue between 2000 and 2005, a robust growth rate when considering comparable rates of hospital output of 1.1% for the U.S. as a whole, -0.25% for the Great Lakes region and -0.6% for Illinois.*
16. *In two-thirds of the rural counties in which CAHs are located, the hospital is among the three largest employers in the county and is a major economic driver for the regional economy. In 2005, the combined net operating revenue for the 33 CAHs that reported FY05 financial data was $528 million.*
17. *In addition to these direct economic impacts, another $235 million was generated by the CAHs in business-to-business transactions and the expenditures by CAH employees on local goods and services (i.e. indirect and induced impacts). The total estimated economic impact of all Critical Access Hospitals on their host counties in 2005 was $763,794,674.*
18. *Construction projects undertaken by the participating hospitals, many of which were deferred until obtaining CAH status, generated additional economic benefit to their communities. In 2005, CAH facility renovations and expansions resulted in an estimated additional $11.2 million in revenues to the region and short-term employment for approximately 571 construction workers.*
19. *Future capital improvements planned for 2007 through 2011 will produce an additional $21.7 million in revenues and approximately 1,103 construction jobs.*

The micro level analysis in the preceding section described how CAH designation has enabled small, rural Illinois hospitals to stabilize financially and maintain or expand quality healthcare services to their communities. The continued existence of these medical facilities has a significant economic impact on their communities, both in terms of revenues generated through hospital expenditures and through employee payrolls. The importance of the jobs generated by these institutions cannot be overstated, particularly in light of the loss of many other major employers throughout rural Illinois in recent decades.

Both phases of the study examined the inter-industry relationships within the appropriate county to estimate the local impact of the CAH. Three types of impacts are estimated: direct, indirect, and induced. The direct impacts are simply the set of expenditures applied to the predictive model for impact analysis. Normally, the assumed change in employment or the output of the subject industry is used as the direct impact component of the model. The indirect impacts are then derived as additional effects caused by industries purchasing from other local industries. Finally, the induced impacts are based on household expenditures and reflect the spending in the local economy of the new income generated by the new employment produced from the impact. The Consumer Price Index (CPI) was used to adjust all of the impact figures to 2005 dollars.

# Findings

In two-thirds of the rural counties in which CAHs are located, the hospital is among the three largest employers in the county and is a major economic driver for the regional economy. This is reflected in the economic impacts that hospitals with CAH status have had on the counties in which they are located. As Table 16 illustrates, in 2005 the combined net operating revenues for the 33 CAHs that reported FY05 financial data were $528 million. When considering only the mature CAHs with at least two years of operation since designation, this figure is $376 million and reflects an increase in average net revenue from $10 million in 2000 to $16 million in 2005, or an annualized increase of 9% during this period. This increase is markedly higher than the comparable rate of hospital output of 1.1% for the U.S. as a whole, and represents a dramatic contrast to the -0.25% loss for the Great Lakes region and the -0.6% loss for Illinois.

**Table 16**
**FY05 Economic Impacts of Total and Mature CAHs on Host County**

| Impact Type | All Reporting CAHs | | Mature CAHs | |
|---|---|---|---|---|
| | Total | Average | Total | Average |
| Net revenue | $528,335,271[a] | $16,010,160 | $376,277,363 | $15,051,535 |
| Employment | 6,662[b] | 208 | 4,923[b] | 205 |

[a] Excludes one of the 33 reporting hospitals that did not provide revenue for FY05.
[b] Includes estimated employment for all mature CAHs

In addition to these direct economic impacts of income and employment, the ongoing operation of a CAH generates business-to-business transactions in the county and hospital employees spend a portion of their earnings on local goods and services. As evident in Table 17, in 2005 these indirect and induced activities totaled more than $235 million in output and 3,137 employees for all participating Critical Access Hospitals. The percent of total employment directly or indirectly related to the presence of the hospital ranges from 0.3% to 33.6%, depending on the county.

**Table 17**
**2005 Economic Impacts of CAHs on Host County**

| | Direct Impact | Indirect and Induced Impacts | Total Economic Impacts |
|---|---|---|---|
| CAH Output | $528,335,271 | $235,459,403 | $763,794,674 |
| CAH Employment | 6,662 | 3,137 | 9,799 |

The indirect and induced impacts varied by hospital. The *employment* multipliers ranged from a low of 1.27 to a high of 1.7. Although the range is significant, 19 of the 33 hospitals analyzed had employer multipliers within the 1.27 to 1.42 interval. The *output* multipliers ranged from 1.3 to 1.59, but were between 1.3 and 1.4 for 21 of the 25 mature CAHs.

The higher multipliers are usually linked to population density. The greater the population density, the greater the ability of the region to capture business-to-business activity and the more likely that a larger share of workers' expenditures will stay in the county. This increases the indirect and induced impacts in the county. These indirect and induced impacts of the hospital operation are felt by most sectors of the regional economies. Table 18 shows the industry sectors that account for more than 5% of the indirect and induced impacts. These impacts vary by hospital location and depend on the regional purchasing coefficient, i.e. the percent of activity that stays in the region.

# Findings

**Table 18**
**Industries Accounting for at Least 5% of Indirect and Induced Output Impacts**

| Industry | High Impact CAHs[a] | Balance of CAHs |
|---|---|---|
| Wholesale trade | 4% | 5% |
| Securities and other financial | 2% | 12% |
| Real estate | 13% | 7% |
| Administrative support services | 8% | 1% |
| Food service and drinking places | 6% | 6% |
| Government[b] | 12% | 14% |

[a] High Impact CAHs are those that have an employment multiplier of at least 1.5
[b]This category also includes minor miscellaneous industries such as scrap, used and secondhand goods

As with output, the distribution of the indirect and induced impact on employment in the hospital region is broad and is felt in almost all sectors of the region. Table 19 provides information on the industries that account for more than 5% of the indirect and induced employment impacts.

**Table 19**
**Industries Accounting for at Least 5% of Indirect and Induced Employment Impacts**

| Industry | High Impact CAHs[a] | Average Impact CAHs |
|---|---|---|
| Food and beverage stores | 3% | 4% |
| Securities and other financial institutions | 1% | 9% |
| Real estate | 8% | 6% |
| Professional, scientific and technical services | % | 6% |
| Administrative support services | 22% | 3% |
| Hospitals[b] | 3% | 6% |
| Food service and drinking places | 13% | 14% |

[a] "High Impact Hospitals" are those that have an employment multiplier of at least 1.5
[b]Hospitals receive indirect and induced impacts as the expenditures of the employees are distributed throughout the region.

## Capital Expenditures.

The economic impact of the construction projects included within these projects may be estimated by using output and employer multipliers for hospital construction activity. Applying these multipliers to the estimated $28,833,623 in projects identified as FY05 building improvements results in a minimum additional $11,238,279 in direct, indirect, and induced output, and short-term employment for an estimated 571 workers.

# Findings

Between 2006 and 2011, the CAHs that completed the Phase II survey described an additional $96.9 million in anticipated future capital improvements. As Table 20 indicates, these improvements are primarily in facility remodeling and expansion, with the acquisition of equipment and technology ranking second. For 2007 through 2011, 71.2% of these projected improvements will be in facilities and 23.0% will be in equipment and technology. Another 3.6% will be improvements in information technology and administrative systems and the remaining 2.3% will be in routine capital upgrades.

Using current economic multipliers, these future construction projects will generate an additional $21,712,528 in direct, indirect and induced revenues for the regional economy and 1,103 construction jobs for area workers over the next five years.

**Table 20**
**Capital Investments by Year - Phase II CAHs**

| Year | No. of CAHs | Amount | Project Types |
|---|---|---|---|
| 2006 | 7 | $18,658,885 | Facility remodeling including surgery, ER, imaging services, rural health clinic, lobby; upgrade chiller; electronic medical record; replace obsolete equipment (nuclear medicine camera, chemistry analyzer, C-Arm); new ambulance; purchase bone densitometer, contrast warmer, morgue equipment, CryoJane system |
| 2007 | 14 | 21,477,391 | Medical office building, MRI, new wing construction, HIS system, digital mammography, radiology, computer system upgrades, physician Chartlink, routine equipment, clinic building, surgical area, sprinklers, Picture Archival & Communication System (PACS), medication dispensing system, cardiac rehab equipment, satellite physician offices, food service remodeling, anesthesia, OR recovery room, nurse call system, ED plant and equipment, lighting |
| 2008 | 14 | 37,705,000 | Outpatient center, expansion, surgery remodel, MRI, CT, new OB wing, routine equipment, additional operating rooms, PACS, CT scanner, digital mammography, imaging, automated blood bank system, boiler replacement, portable x-ray machine, video-conferencing system upgrade, Pulmonary Function Test system |
| 2009 | 6 | 14,688,000 | Outpatient renovation, CT scanner, pool therapy building, routine equipment and technology, sleep lab system upgrade, home medical equipment delivery vehicle |
| 2010 | 3 | 1,584,043 | General remodeling and upgrades, dictation/transcription system, whirlpool tubs for skilled nursing facility, cafeteria chairs & tables, bariatric bed, dietary equipment |
| 2011 | 3 | 1,450,000 | General remodeling, lab, hematology analyzer |
| unassigned | 1 | 1,369,000 | MRI, anesthesia machine |
| Total | | $96,932,319 | |

# Findings

## OTHER IMPACTS

## Key Finding:

20. *Beyond financial stabilization and quality improvements, survey respondents identified benefits associated with CAH status as the ability to attract qualified physicians and other essential healthcare personnel to these rural facilities and the opportunity to refocus their operations.*

Both survey instruments provided the CAH chief executive and financial officers with opportunities to describe what CAH designation has meant to the hospital and surrounding community. Both positive and negative effects were noted.

The most prevalent comment addressed the financial stabilization that has occurred as a major positive effect of CAH status and the resulting opportunity to maintain and improve quality healthcare services to rural Illinois communities. Attracting qualified physicians to these small rural hospitals and communities was identified as a benefit that is essential for their survival. One hospital noted that they were beginning to recapture patients who were going out of town for medical services and a number of others described the effect of their improved image and reputation in attracting new patients.

Several CAHs described the designation process as an opportunity to review their programs and services and refocus their operation. This process enabled the hospitals to discontinue certain services, close unprofitable branches of their operation, encourage physicians to enter private practice, and/or reduce their workforce. One CAH described the designation process as requiring "changes to processes, systems, workflows, mindsets." Another CAH described positive outcomes in improving quality, particularly with respect to meeting national hospital quality measures.

Several CAHs identified access to Flex grant opportunities through ICAHN as a positive effect. These grants assisted the hospitals in disaster preparedness, community diabetes education, staff and board education, performance improvement, reduction of medical errors, and HIPAA.

In addition to the many positive comments, several negative effects were also described by respondents. Two CAHs described the challenge of describing their CAH status to the community without raising public alarm about their hospitals' financial situation. Other concerns were described by one hospital each:

- The hospital's participation in the Medicare Advantage Program may result in a loss of its Medicare customer base.
- Patients can sometimes pay more insurance at a CAH than a PPS hospital due to the requirement that CAHs bill Medicare separately for inpatient and outpatient services. The result is that the patient pays the inpatient co-insurance and another 20% for outpatient services.
- CAHs are targeted for audits, a process that they are prepared for but that consumes considerable staff time.

# Conclusion

Critical Access Hospitals throughout rural Illinois serve vital medical and economic purposes. In addition to providing a broad range of primary and emergency care and community services to medically vulnerable populations, particularly the elderly, CAHs are major contributors to the local economic base. Designation as a Critical Access Hospital and access to the financial benefits associated with that program have enabled many of these institutions not only to keep their doors open, but to update obsolete facilities and equipment and respond to the changing healthcare needs of their communities. The continued operation of the hospitals that participated in this study represents annual contributions of almost $750 million to their local economies through expenditures and payroll.

# Appendix A

## PRIMARY MARKET AREA CHARACTERISTICS FOR PARTICIPATING CAHs

| | POPULATION | | | | | RACE | | | RURAL | AGE | | | HOUSE HOLDS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HOSPITALS | 1990 | 2000 | 2005 | 2010 | % Change 2000 to 2005 | White Non Hispanic | Hispanic | Black | % Rural | % Under 18 | % 65 & Over | 65 & Over | House holds 2005 | House Holder 65 & Over | Estimated Median Household Income |
| Community Medical Ctr of Western Illinois | 22,696 | 22,578 | 22,274 | 21,375 | -1.35% | 20,299 | 587 | 303 | 55.9% | 23.5% | 15.6% | 3,466 | 9,145 | 2,449 | $41,664 |
| Community Memorial Hospital | 21,375 | 21,592 | 21,385 | 21,513 | -0.96% | 19,789 | 147 | 48 | 48.4% | 24.5% | 17.4% | 3,731 | 8,917 | 2,471 | $38,963 |
| Culbertson Memorial Hospital | 19,556 | 20,914 | 20,694 | 20,646 | -1.05% | 17,168 | 1,607 | 1,131 | 35.5% | 22.7% | 15.9% | 3,300 | 8,242 | 2,265 | $36,157 |
| Dr. John Warner Hospital | 13,811 | 14,118 | 13,817 | 13,810 | -2.13% | 12,511 | 217 | 66 | 44.7% | 24.8% | 14.7% | 2,037 | 5,675 | 1,435 | $46,260 |
| Eureka Community Hospital | 71,628 | 76,923 | 79,395 | 80,407 | 3.21% | 73,610 | 628 | 194 | 37.6% | 26.2% | 14.5% | 11,546 | 30,784 | 7,389 | $52,483 |
| Fairfield Memorial Hospital | 11,901 | 11,681 | 11,401 | 11,201 | -2.40% | 10,483 | 62 | 15 | 55.9% | 22.3% | 21.1% | 2,407 | 5,038 | 1,700 | $32,195 |
| Franklin Hospital | 28,510 | 27,648 | 27,160 | 27,935 | -1.77% | 24,970 | 173 | 55 | 29.7% | 22.8% | 18.8% | 5,101 | 11,702 | 3,436 | $30,562 |
| Galena Stauss | 21,323 | 21,827 | 22,195 | 22,547 | 1.69% | 20,162 | 365 | 44 | 71.0% | 23.2% | 17.3% | 3,841 | 9,291 | 2,624 | $42,842 |
| Gibson Area Hospital | 16,878 | 16,859 | 16,738 | 16,563 | -0.72% | 15,473 | 248 | 60 | 51.3% | 26.1% | 18.1% | 3,027 | 6,908 | 2,038 | $44,724 |
| Hamilton Memorial Hospital | 7,986 | 7,958 | 7,551 | 7,169 | -5.11% | 7,032 | 55 | 26 | 65.1% | 23.9% | 19.6% | 1,481 | 3,158 | 1,017 | $31,595 |
| Hammond-Henry Hospital | 15,542 | 16,250 | 16,296 | 16,198 | 0.28% | 14,916 | 200 | 46 | 60.5% | 25.8% | 15.7% | 2,562 | 6,392 | 1,682 | $45,818 |
| Hopedale Medical Complex | 22,069 | 22,679 | 22,421 | 21,754 | -1.14% | 19,827 | 412 | 1,350 | 25.7% | 21.6% | 15.1% | 3,378 | 9,092 | 1,413 | $45,912 |
| Illini Community Hospital | 4,440 | 4,769 | 4,694 | 4,309 | -1.57% | 4,186 | 30 | 201 | 13.8% | 19.9% | 23.4% | 1,099 | 1,920 | 739 | $33,213 |
| Kewanee | 19,741 | 19,285 | 18,641 | 18,977 | -3.34% | 15,934 | 990 | 499 | 19.7% | 24.6% | 19.7% | 3,679 | 7,769 | 2,481 | $36,082 |
| Lincoln Memorial Hospital | 28,610 | 29,144 | 28,705 | 27,765 | -1.51% | 25,760 | 449 | 1,434 | 31.5% | 22.0% | 15.7% | 4,513 | 11,827 | 3,262 | $43,841 |
| Marshall-Browning Hospital | 33,319 | 34,739 | 34,876 | 33,884 | 0.39% | 30,982 | 531 | 1,724 | 63.8% | 22.5% | 16.5% | 5,738 | 14,614 | 4,282 | $33,185 |
| Mason | 18,465 | 18,229 | 17,986 | 17,642 | -1.33% | 16,634 | 104 | 23 | 65.5% | 24.2% | 16.7% | 3,005 | 7,354 | 2,027 | $38,259 |
| Massac Memorial Hospital | 11,349 | 11,397 | 11,037 | 11,146 | -3.16% | 9,634 | 84 | 648 | 43.2% | 22.6% | 18.3% | 2,016 | 4,725 | 1,312 | $33,214 |

# Appendix A

## PRIMARY MARKET AREA CHARACTERISTICS FOR PARTICIPATING CAHs

| HOSPITALS | POPULATION | | | | | RACE | | | RURAL | AGE | | | HOUSE HOLDS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2010 | % Change 2000 to 2005 | White Non Hispanic | Hispanic | Black | % Rural | % Under 18 | % 65 & Over | 65 & Over | House holds 2005 | House Holder 65 & Over | Estimated Median Household Income |
| Memorial Hospital | 17,679 | 16,891 | 15,965 | 15,014 | -5.48% | 14,763 | 93 | 36 | 66.7% | 24.4% | 19.5% | 3,110 | 6,583 | 1,851 | $39,330 |
| Mendota Community Hospital | 43,615 | 45,507 | 45,487 | 45,532 | -0.04% | 39,769 | 3,055 | 352 | 35.5% | 26.3% | 15.8% | 7,167 | 18,423 | 4,738 | $47,685 |
| Mercy-Harvard Hospital | 55,767 | 66,424 | 71,184 | 75,947 | 7.17% | 46,951 | 6,490 | 8,068 | 31.2% | 27.7% | 10.2% | 7,239 | 26,473 | 4,778 | $53,444 |
| Morrison | 12,625 | 12,516 | 11,871 | 11,778 | -5.15% | 10,882 | 210 | 55 | 63.4% | 24.0% | 16.6% | 1,976 | 4,662 | 1,244 | $46,807 |
| Pana Community Hospital | 18,534 | 18,560 | 17,985 | 17,889 | -3.10% | 16,795 | 108 | 244 | 52.4% | 24.9% | 18.0% | 3,242 | 7,438 | 2,175 | $36,891 |
| Paris Community Hospital | 68,370 | 66,093 | 64,442 | 65,109 | -2.50% | 55,356 | 704 | 4,222 | 21.1% | 23.9% | 15.9% | 7,239 | 28,153 | 7,239 | $37,835 |
| Perry Memorial Hospital | 13,465 | 13,597 | 13,404 | 13,231 | -1.42% | 11,324 | 1,091 | 37 | 43.7% | 24.0% | 18.2% | 2,440 | 5,578 | 1,616 | $43,279 |
| Pinckneyville Community Hospital | 23,110 | 24,874 | 24,308 | 23,553 | -2.28% | 21,371 | 439 | 1,669 | 61.6% | 22.6% | 15.4% | 3,751 | 9,985 | 2,842 | $36,486 |
| Rochelle Community Hospital | 20,854 | 22,842 | 23,843 | 24,832 | 4.38% | 19,368 | 3,197 | 169 | 51.1% | 28.6% | 11.8% | 2,818 | 9,020 | 1,899 | $52,180 |
| St. Joseph - Highland Hospital | 24,440 | 27,355 | 29,840 | 29,583 | 9.08% | 27,723 | 332 | 59 | 58.2% | 26.6% | 13.8% | 4,114 | 11,766 | 2,789 | $50,265 |
| St. Joseph Memorial Hospital | 18,547 | 23,099 | 21,755 | 21,854 | -5.82% | 18,315 | 476 | 2,138 | 41.7% | 18.7% | 12.2% | 2,664 | 7,951 | 1,998 | $34,999 |
| St. Vincent Memorial Hospital | 14,787 | 15,724 | 15,703 | 15,626 | -0.13% | 14,506 | 151 | 278 | 17.7% | 24.2% | 17.1% | 2,690 | 6,650 | 1,970 | $40,105 |
| Valley West Community | 9,109 | 11,371 | 12,182 | 12,602 | 7.13% | 10,894 | 801 | 23 | 19.6% | 28.3% | 11.9% | 1,454 | 4,652 | 1,010 | $56,008 |
| Wabash General Hospital | 12,098 | 11,869 | 11,415 | 11,183 | -3.83% | 10,421 | 91 | 46 | 36.5% | 24.1% | 16.8% | 1,916 | 4,690 | 1,236 | $37,427 |
| Washington County Hospital | 5,573 | 5,471 | 5,356 | 5,437 | -2.10% | 4,933 | 44 | 12 | 46.5% | 25.4% | 16.4% | 876 | 2,187 | 661 | $45,313 |

Unless otherwise labeled, all values are 2005 estimates.

Source: Easy Analytic Software, Inc. 2005; Regional Development Institute, NIUO

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Report to the

# Illinois Critical Access Hospital Network

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